

CLAIMS

We claim:

1. A projection display, comprising:

a hollow case including a window opening;

a screen formed on one portion of said case;

at least one mirror internally mounted in said case at a position to reflect light from said window opening to said screen;

a window mounted in said window opening;

an optical engine mounted to said case, with said optical engine being positioned over said window and oriented so that emitted light from said optical engine is directed onto said at least one mirror;

a diaphragm internally attached to said case and dividing an internal volume of said case into a first portion and a second portion;

a gas filling said second portion of said case at an overpressure; and

a vent communicating with said first portion of said case and communicating with an external environment to at least partially equalize said overpressure of said second portion with a pressure of said external environment.

2. The projection display of claim 1, wherein said diaphragm comprises a flexible diaphragm.

3. The projection display of claim 1, said vent allows atmospheric air into said first portion.

4. The projection display of claim 1, wherein said at least one port comprises two ports, with a first port comprising an inlet for introducing said dry, inert gas into said second portion of said case and a second port comprising an outlet for removing atmospheric air from said second portion of said case during said introducing of said dry, inert gas.
5. The method of claim 1, wherein said gas comprises a dry, inert gas.
6. The projection display of claim 1, wherein said gas comprises nitrogen.
7. The method of claim 1, wherein said optical engine is positioned below said screen.
8. The method of claim 1, wherein said optical engine is removably mounted to said case.
9. The method of claim 1, further comprising a flexible dust boot interposed between said optical engine and said case.
10. The method of claim 1, further comprising a seal positioning in said window opening.

11. A projection display, comprising:

a hollow case including a window opening;

a screen formed on one portion of said case;

at least one mirror internally mounted to said case at a position to reflect light from said window opening to said screen;

a seal positioned in said window opening;

a window mounted in said window opening and sealingly retained therein by said seal;

an optical engine removably mounted to said case, with said optical engine being positioned over said window and oriented so that emitted light from said optical engine is directed onto said at least one mirror;

a flexible dust boot interposed between said optical engine and said case;

a diaphragm internally attached to said case and dividing an internal volume of said case into a first portion and a second portion;

a vent opening formed in said case and positioned in said first portion and communicating with said first portion, with said vent opening allowing atmospheric air into said first portion;

a dry, inert gas filling said second portion of said case at an overpressure;

and

two sealable ports communicating with an interior of said second portion of said case, with a first port comprising an inlet for introducing said dry, inert gas into said second portion of said case and a second port comprising an outlet for

removing atmospheric air from said second portion during said introducing of said dry, inert gas.

12. The projection display of claim 11, wherein said diaphragm comprises a flexible diaphragm.

13. The projection display of claim 11, wherein said dry, inert gas comprises nitrogen.

14. The method of claim 11, wherein said optical engine is positioned below said screen.

15. A method of forming a projection display, comprising the steps of:

forming a hollow case including a window opening and a screen;

affixing at least one mirror to an internal surface of said case at a position to reflect light from said window opening onto said screen;

applying a seal to said window opening;

sealingly mounting a window in said window opening and retained in said window opening by said seal;

mounting an optical engine to said case, with said optical engine being positioned over said window and oriented so that emitted light from said optical engine is directed onto said at least one mirror;

providing a flexible dust boot between said optical engine and said case;

sealingly attaching a diaphragm to an interior region of said case, said diaphragm dividing an internal volume of said case into a first portion and a second portion;

supplying a dry, inert gas to said second portion of said case using a first port;

evacuating atmospheric air from said second portion of said case using a second port; and

pressurizing said second portion of said case with said dry, inert gas to an overpressure.

16. The method of claim 15, further comprising forming a vent opening in said case and positioned in said first portion and communicating with said first portion, with said vent opening allowing atmospheric air into said first portion.

17. The method of claim 15, wherein the step of supplying a dry, inert gas comprises supplying nitrogen.

18. The method of claim 15, wherein said optical engine is mounted to said case in a position below said screen.